

A CASE OF CATHETER FEVER.

By JOHN HADDON, M.D.,

OF EDINBURGH.

THE patient, A. H., aged 66 years, had enjoyed excellent health. as a farmer in the country, until about eight years before the beginning of his illness, when he began to be troubled with symptoms arising from enlargement of the prostate gland, such as frequent micturition, especially after having taken any stimulants, requiring a long time to micturate, delay being noticed both at the beginning and end of the act.

In the morning having made water on getting out of bed, he often had to pass more before he had finished dressing. He also at times was quite oppressed with drowsiness, and a sense of weight of the head, with occasional giddiness.

Hæmorrhoids also troubled him, which at times bled freely.

In the winter of 1881 one of his feet became painful, and he thought he had sprained the ankle, but it had not the character of a sprain. The pain was over the lower part of the joint, about the middle of the inner side, where there was slight fulness. After lasting some months, the pain ceased; but in 1882 the other foot was similarly affected, which also got well, after a duration of some months. In the end of 1883, the left knee joint became painful, a tender spot existing over the internal semilunar cartilage. This pain continued until he was taken ill on January 10th, 1884, suffering from inflamed hæmorrhoids, and great difficulty in passing urine. He could pass only a very small quantity at once, but in the night the urine had passed without his knowledge.

On January 11th, he continued in the same state going about the house, and feeling much out of sorts.

On January 12th, he went to bed at 8 p. m. feeling cold.

On January 13th, a soft elastic catheter was passed quite easily, and twenty ounces of healthy looking urine escaped.

On January 14th, the catheter could not be passed.

On the 15th, he passed urine fairly well, and still continued in bed.

In the night between the 16th and 17th, he passed a potful of urine.

On the 18th he was not so well, having had a restless night, passing urine every quarter of an hour.

On the 19th he continued in the same state. The hæmorrhoids were very painful, and at 10 p. m. he had half a grain of morphia in a suppository. At 1 a. m. he had another suppository. He continued passing urine about every quarter of an hour until 6 a. m. of January 20th, when he could not pass any, and on getting into bed, at once fell asleep.

He continued asleep, breathing somewhat heavily, though not unnaturally until 11 a. m., when Professor Chiene saw him for the first time.

On trying to awake him, it was found that he was in a comatose state. His pupils were small, his skin moist, his pulse fast for the first time, and quite soft. Having tried to pass soft catheters without success, the silver prostatic one was passed, without difficulty. About thirty ounces of acid urine escaped, followed by a white stream of pus.

It required a good deal of rousing to get him to look up at all, and he recognized no one.

At 1 p. m. the pulse was very weak and fast, though his breathing was good. At 5 p. m. a rattle was heard in the throat, the pulse continuing very weak and irregular.

At 9 p. m. the catheter was again passed, and the bladder washed out with a solution of corrosive sublimate (1 in 2000) according to the advice of Professor Chiene, under whose direction the case was now treated.

During the operation he merely moaned as if he felt something unusual. At 10:20 p. m. the breathing became very weak, the pulse very feeble, and death seemed imminent. About 11 p. m., however, he began to look about, as if recognizing those around him, and gradually intelligence returned. The perspiration ceased, the skin became dry, and the tongue was dry and furred. The pupils were still contracted.

On January 21st at 9 a. m., twenty-five ounces of red urine were withdrawn; but the bladder could not be washed out on account of clots of blood obstructing the instrument.

On January 22d, he began to hiccup, the pulse was weak, irregular and intermittent. At 7 a. m. eighteen ounces of red urine were withdrawn, and as the clots were found to obstruct the passage of urine, they were sucked through the catheter until the bladder could be emptied, and washed out as before. The pulse continued very irregular, and intermittent but he had two hours of sleep in the afternoon. There was dullness at the base of the right lung, and he had some cough, spitting up almost pure blood. At the upper part of the sacrum on the

right of the middle line, there was an indurated swelling about an inch broad, by an inch and a half long, which did not give him any pain, but care was taken to avoid pressure upon it.

On January 23d, there was some difficulty in passing the silver catheter and a French double curved soft one, passed easily. He now had great pain when the bladder was empty, the pain being referred to the course of the urethra. This pain continued to trouble him at each operation of emptying and washing of the bladder. The pupils were beginning to dilate, his tongue was not so dry, and he was resting better. The sublimate solution was alternated in washing the bladder, with a weak carbolic solution, or permanganate of potash.

On January 25th, the urine was not so red and for the first time he passed a few drops himself.

January 26th. He felt cold in the night and complained of pain about the left elbow. The tongue was dry, with a sharply defined brown coat down the centre.

January 27th. The urine was of normal colour. He expressed himself as feeling well, but for the pain above the elbow joint, where fluctuation was felt and an opening having been made, a small quantity of pus escaped. The cavity of the abscess was syringed with sublimate lotion and dressed with cotton wool.

So the case continued. The bladder was emptied, and washed repeatedly during the day. The power of passing urine improved, but there was generally more or less pain even then. The pain along the urethra after emptying and washing the bladder was the greatest trouble. He never felt quite comfortable after the operation until he was able to pass a few drops of urine himself. Leaving some of the solution (much reduced) in the bladder seemed to lessen the after pain. Without continuing to give a detailed account of the case, it may be stated that the abscess above the elbow was healed by the 15th of February.

The swelling over the sacrum which had a crust over its most prominent part began to discharge a small quantity of pus on February 25th. On the 27th the hardness around it increased, and on passing a probe it went in several inches. On the 29th the orifice was enlarged to allow of free drainage and washing. On March 4th, the opening was found to be blocked up by a sloughing mass hanging in it, and the opening was enlarged still more by a bistoury. The probe went in four inches extending towards the crest of the ilium and the head of the femur. The tissues inside seemed one mass of slough, the skin being quite healthy. On March 6th the wound looked unhealthy with everted edges, and the discharge had almost ceased. At 5 p. m. he had a severe rigor lasting an hour. That night there was less pus in the

urine, the back was dry, and the atmosphere of the room was offensive with such a smell as one would have expected the wound in the back to have given out; but the wound had no unpleasant smell. Evidently the odour was exhaled with the breath. Next day on March 7th there was no such smell. He continued in a very critical state till March 20th, after which he gradually, though slowly, improved. The discharge from the back continued, sloughing tissue hanging from the wound and requiring now and again to be cut away. It was quite healed on April 13th and he was up and dressed for the first time on April 23rd. When taken ill he weighed about 15 stones. On April 29 he weighed 10 stones 3 lbs. On May 20th, 11 stones 3 lb.: and on June 21st, 12 stones 3 lbs. at which he remained.

The urine which contained pus when drawn off by Professor Chiene on January 20th, did not again show pus until February 1st and then it continued in it all through the illness. When at stool there was invariably a little thin pus passed with pain, as if the *faeces* pressing on the enlarged prostate gland squeezed it into the urethra. When first examined by the microscope on February 12th, the urine contained innumerable highly refracting points (micrococci), but no bacteria were seen at that time. Bacteria however were soon discovered in newly passed urine, and continued all through even when he was up and going about. They varied in quantity, being most numerous when he was most feverish. There were also different kinds seen, such as simple moving rods, necklace-like combinations, straight and twisted in various ways; cells about the size of pus cells were also seen containing round particles, all in motion and giving the cell the appearance of a dissolving view, where all the colours of the rainbow could be seen. The bacteria were put into the various solutions used to wash the bladder but they did not affect their vitality. They were also put into solutions of greater strength and still their activity was unimpaired.

Some points of interest in this case may be noticed.

First of all there is the length of time during which he suffered from difficulty of emptying the bladder, with drowsiness and latterly pains in the joints of the feet and knees.

So far as one can judge these symptoms were due primarily to the obstruction offered to the exit of urine from the bladder from the enlarged prostate, and secondarily, to the accumulation of urine in the bladder which probably had some prejudicial effect on the action of the kidneys.

If the catheter had been used when these prostatic symptoms

first appeared, it is probable that the health of the patient might have been improved and such an illness as he ultimately endured might have been prevented.

Then as to the illness itself:

It is evident that without the catheter, death would have been certain and so the catheter must be used even though it is supposed that the catheter is the cause of the fever. That, however, I believe will be found to be a mistaken notion. I have seen an old man whose urine used to dribble from him, so that his trousers seldom were dry, suddenly seized with what was something like apoplexy, and die after lingering a few days in a state of coma. That coma I have no doubt was identical with that seen in the case I have mentioned, and in it no catheter was passed.

I have also seen a man advanced in life but engaged in business, who for years had been obliged to pass urine every hour, night and day, suddenly taken ill with feverish symptoms and drowsiness which gradually merged into coma and death. A surgeon saw him when in a semi-comatose state. Having heard his history, and seen his symptoms, he thought it necessary to pass a catheter, no catheter having previously been passed. A soft catheter was passed and a small quantity of urine withdrawn but without any improvement in the patient, who never regained consciousness. In that case the fever could not be dependent on the use of the catheter. The character of the coma so far as I have seen in cases of catheter fever is unlike that of apoplexy, or uræmia. There is neither the bounding pulse or the stertorous breathing of apoplexy, nor the peculiar smell, which is associated with uræmia. Whatever be its cause, whether it be the urine by its pressure preventing the action of the kidney, or the absorption of stagnant urine through the kidney, bladder, or diseased prostate, it was removed after emptying the bladder and washing it out with a solution of corrosive sublimate in the case narrated.

Following the coma we had mischief in the tissues over the right side of the sacrum and above the left elbow, while blood was effused into the right lung and into the bladder. Wherever the blood came from which formed as it were a cast of the bladder, for the catheter could be felt as if passing into

a solid mass, it is pretty certain that it did not come from the kidney. Its most probable source would seem to be the prostate itself.

The mischief above the elbow formed an abscess. The swelling over the sacrum which was almost painless, and which seemed to increase and diminish in size as the temperature rose and fell remained as it were in a latent state for over a month. Then it began to discharge, and a great mass of sloughing tissue was found, the skin over it being quite healthy. In seven weeks it healed, leaving scarcely a trace of its existence.

I have seen the same kind of a sore in the same place, in those suffering from catheter fever, who never were comatose, and though I cannot cite a sufficient number of cases from which to generalize, it seems probable that there is some close relation between such lesion of this particular part, and the bladder or prostate.

The enlargement of the opening which was made on March 4th, followed on March 6th by a severe rigor, the first symptom of septicæmia, suggested the relationship of cause and effect, so powerfully that Dr. McLeod, who attended the patient with me, expressed the opinion, that in such cases under such circumstances, the cautery would be a safer instrument than the knife with which to make an incision.

The state of the urine in cases of catheter fever, as Sir Andrew Clark pointed out, is of low specific gravity. In this case the specific gravity was not taken before the attack, but the urine was examined for albumen and found quite free from it. During the attack the specific gravity was as low as 1003. About April 10th, when he seemed improving, it reached 1015, and in July was 1019. The quantity of urine varied from 550 c. c. to 1950 c. c. *per diem*.

This state of the urine of low specific is well worthy of study.

In 1875 I made some observations on my own urine, during the whole month of December. I found the specific gravity of urine passed at particular times, for example after reading anything that required thought or which was exciting, such as a sensational novel, was as low as 1004, but the average for the month was 1024.

The quantity of urine varied from 680 c. c. to 1610 c. c., the average being 980.

The amount of urea varied from 13.5 grammes to 27 grammes, while the average was 18.5. I found that the amount of urine and the urea varied directly; while both of these varied inversely as the specific gravity.

Thus, if these observations are correct, the low specific gravity of the urine in catheter fever, is no indication of diminished excretion of urea and as there is no albuminuria, its cause is yet to be found.

As to the relation of bacteria to this disease: They were no doubt in the urine, but whether they were there from the beginning I cannot say. So far as I have been able to form an opinion, I am inclined to think that they are a consequence and not the cause of the state of the system.

The character of the suffering is well marked. The pain extends from the perinæum along the urethra and shows that it is about the prostatic portion of that canal where is the origin of all the trouble.

The true nature of the disease, so far as its local history can be made out, consists in inflammation and suppuration of the enlarged prostate gland. As felt, per rectum, the gland seemed as large as a child's head. Seeing, then, that the prostate is the sole cause of all the trouble, that it is a comparatively useless gland, especially at the age at which it generally causes trouble, why should it not be attacked directly by the surgeon, instead of merely emptying the bladder by the catheter and trying to get rid of its deleterious products, when they have escaped into the bladder, while the cause remains, and in the event of the patient's recovery continues to render life more or less irksome? That seems the direction in which our study of this very common ailment ought to extend, and he who can devise a safe operation for the relief of such sufferers will deserve well of his country and kind.